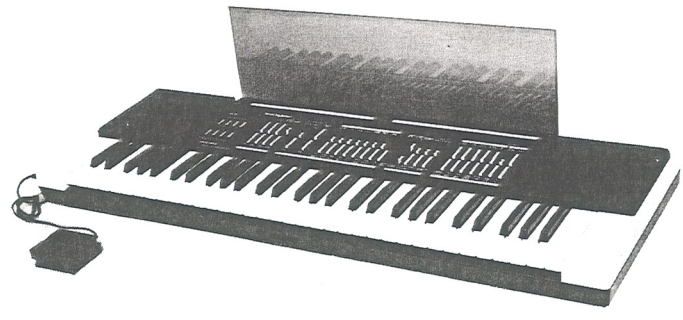
JVC

SERVICE MANUAL

MODEL

KB-700 B/N/H

ELECTRONIC KEYBOARD



No. 6516
June 1983

Contents

Specifications

Item	Description
Sound source	2 master sound sources Solo preset : Monophonic system Orchestra preset: 8-note polyphonic system
Keyboard	61 keys (C2 ~ C7; 5 octaves)
Solo synthe. preset	Trumpet, Guitar, Solo keying, Pan flute, Synthe. tone
Orchestra preset	String ensemble, Piano, Organ, Harpsichord, Trumpet, Vibraphone, Trombone, Elec. piano, Jazz organ, Hawaiian guitar, Clarinet, Jazz flute
Accompaniment tone	Accomp. strings Bass
Effect	Magic foot (Sustain, Bend, Full-in), Presence control, Sustain lever (Base, Orchestra), Ultra-chord (Open, Off, Close), Stereo/Ensemble switch, Tremolo, Sustain switches
Stereo pan pot mixer	Pan pot: (1. Base, 2. Accomp./Arpegio, 3. Strings, 4. Orchestra, 5. Solo synthe./Mic.) Mixer: (1. Autorhythm, 2. Base, 3. Accomp. 4. Arpegio, 5. Accomp. strings, 6. Orchestra, 7. Solo synthe.)

Mode	Accompaniment	Melody
Key split FULL	0	61
Key split 1	Left 19	Right 42
Key split 2	Left 24	Right 37

Item	Description
Auto-rhythm	Rhythms: 14 patterns, Stereo rhythm Waltz, Samba, Bossanova, Disco, Rock I, Legae, Swing, Polka/March, Rumba, Tango, Rock'n roll, Rock II, Slow rock, Shaffle Rhythm tempo, Synchro-start, Intro. & Fill-in, Start & Stop Tact ..... Beat conductor (4 LEDs) Tempo range ..... ♩ = 45 ~ 280
Fascinating chord	Normal, One-finger, Multi-finger, Chord memory Accomp. (Piano/Guitar), Arpegio variation (3), Base variation (1, 2, 3, Auto-variation), Key split, Key transpause
Compu-corder	Record (Chord/Base), Replay, 3 musics selector (up to 62 bars)
Other controls	Power switch, Total volume control, Solo synthe. pitch control (Solo pitch) Orchestra pitch control (Main pitch)
External	Expression pedal terminal Mic terminal (w/volume): −60 dB AUX OUT (Stereo pin jack): −6 dB Magic foot terminal (Magic foot is an accessory.) Headphone terminal
Max. output	4 W + 4 W (AC) 2.5 W + 2.5 W (DC)
Power source	AC 240/220/110 V, 50/60 Hz DC 12 V (SUM1 cell x 8 — not provided) (Car battery — with CN332 adaptor*)
Power consumption	29 W (Switch ON) 1.8 W (Switch OFF)
Battery life	3 hours approx. (continuous operation/max. vol.)
Speaker	ϕ 14 cm x 2
Other	Battery warning light (Power LED)
Dimensions	950 mm (W) x 99 mm (H) x 330 mm (D)
Weight	9.3 kg (without batteries)
Finish	2-tone color (Black & white) with plastic case

Safetey Precaution

1. Make sure to use the specified parts for those marked with ⚠ symbol.
2. Return the clamp near the power supply to original position after servicing.
3. Disconnect the power before removing connectors of various units and circuit boards.
4. IMPORTANT: (Model KB-500B only)
   The wires in the mains lead (power cord) are coloured in accordance with the following code:
   Green-and-Yellow : Earth
   Blue : Neutral
   Brown : Live

The wire which is coloured Green-and Yellow must be connected to the treminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured blue or black.
The wire which is coloured Brown must be connected to the treminal which is marked with the letter L or coloured brown or red.

Features

- Variegated auto-accompanyment system by adopting the multi-functional microcomputer system.
- Compucorder memorizing chord and bases of 62 bars of 3 musics
- Key split switches over the accompanyment keyboard from a range to another.
- Easy transposing by use of the key transpose function.
- Stereophonic auto-rhythm.
- Pan pot mixer helps to make right and left sound images differently and free.
- Magic foot controls three kinds of effects.
- Solo synthe. presets and orchestra presets in the two master sound source system
- Solo synthe. presets with solo keying function thank to a quasi-synthesizer circuit system.
- Orchestra presets of 8-note polyphonic system

Main Parts Location

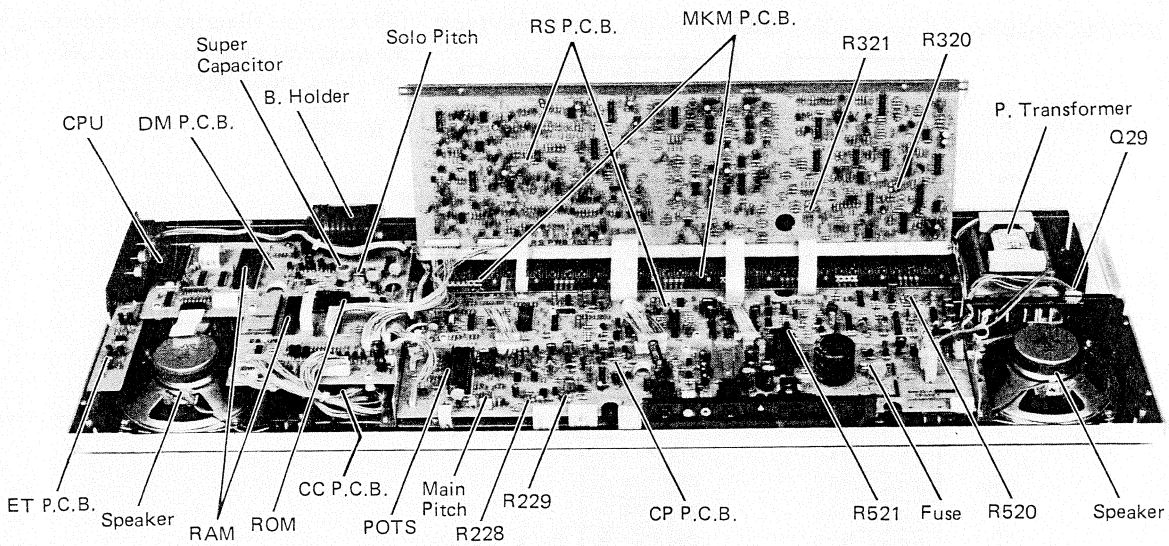


Fig. 1

Outline of Microcomputer in This Keyboard

1. Main functions of microcomputers

- Keying of orchestra presets (including sound source dividing function)
- Sound source dividing for solo presets
- Fascinating chord
- Auto-rhythm
- Selecting of presets and effects
- compucorder
- Key transpose
- Ultrachord
- Key split
- Turning on and off of LEDs

2. Block diagram

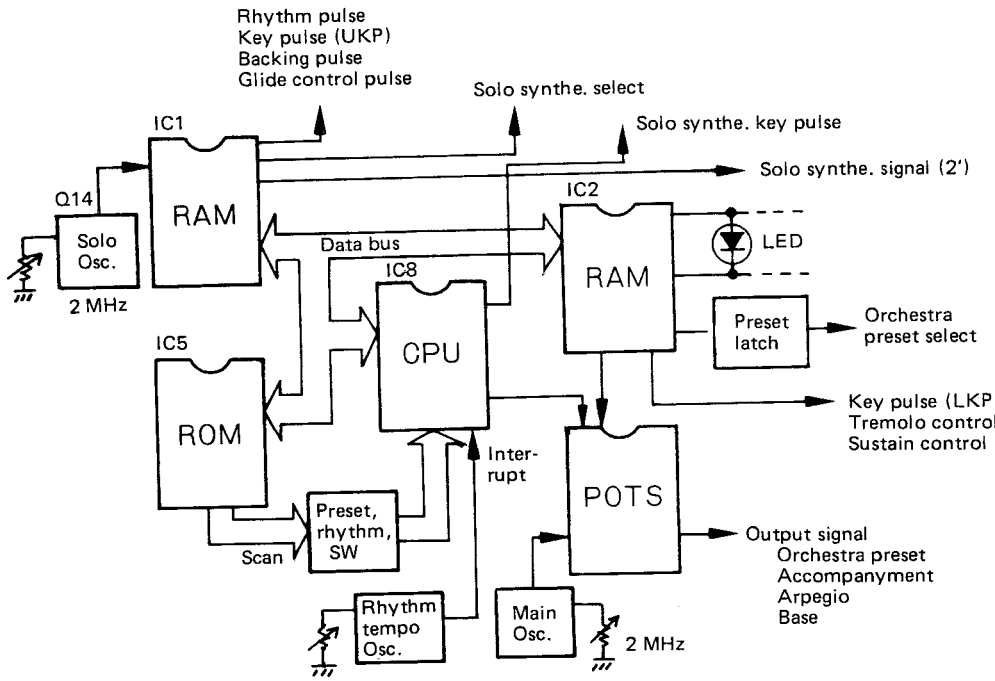


Fig. 2

3. IC terminals

■ **CPU** MSM80C49-40RS (2 K bites ROM, 128 bites RAM, 8-bit 1-chip type) CPU controls all operations according to the programs of the built-in ROM and an additional ROM (MSM83C55).

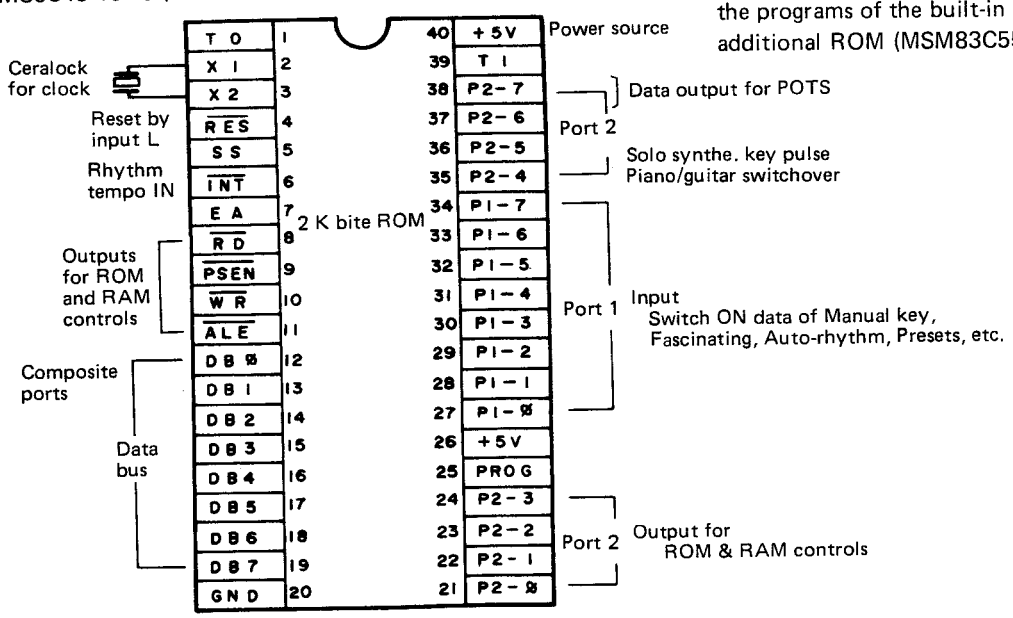


Fig. 3

■ **Microcomputer scanning block diagram**

The 14-bit binary code turned out from ports A and B of ROM (MSM83C55) scans every switch and enters into port 1 of CPU through the buffer, and CPU outputs various kinds of commands according to the information input.

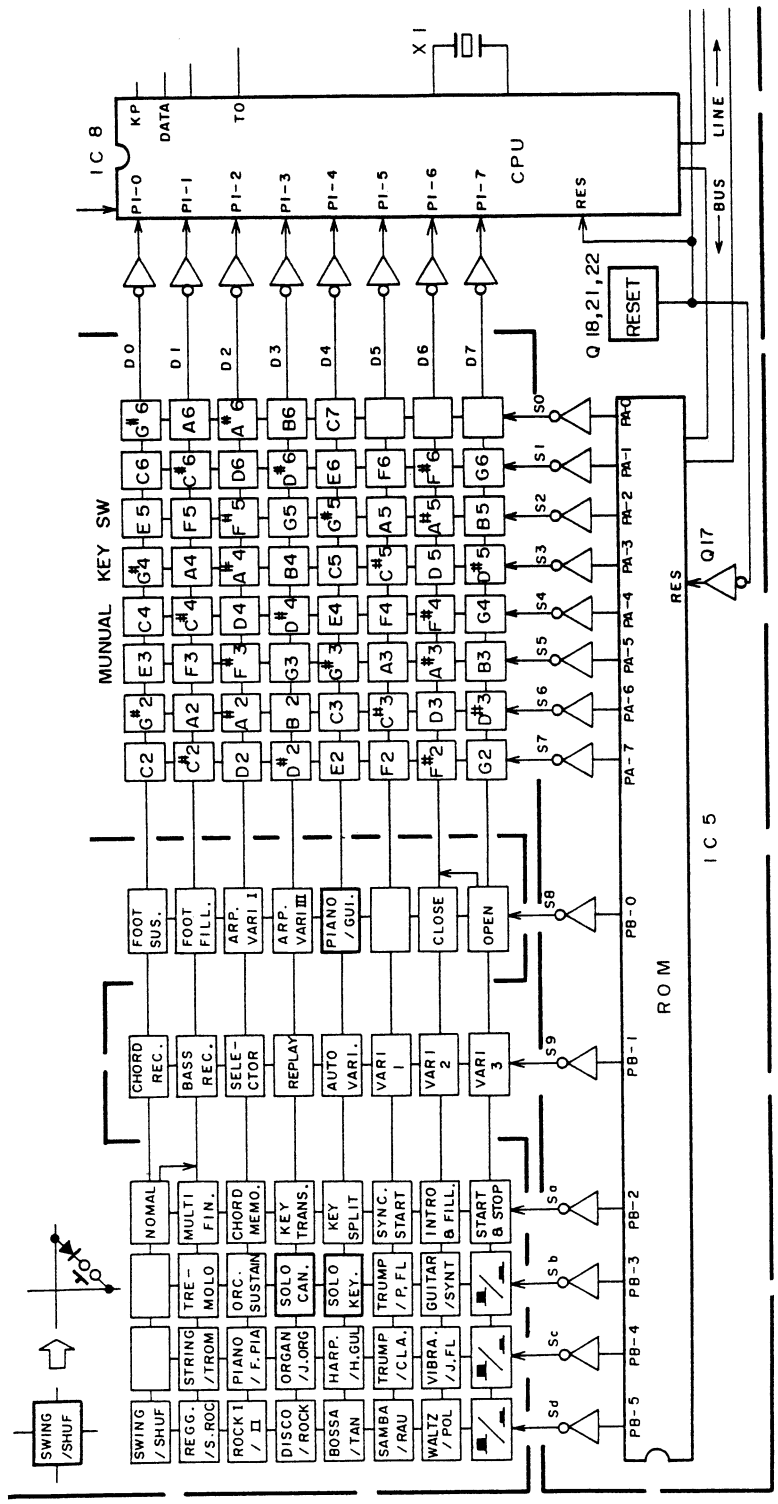


Fig. 4

■ ROM (MSM83055-18RS)

ROM memorizes all the program and also receives switching informations.

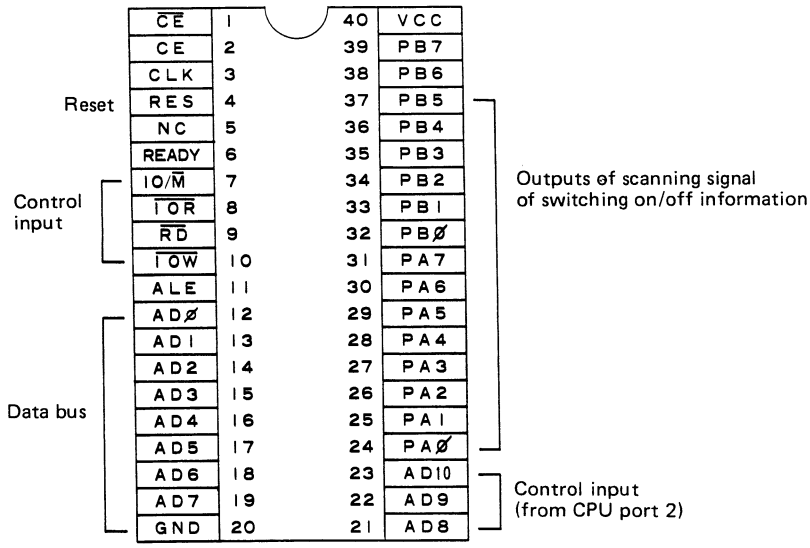


Fig. 5

■ RAM (MSM81C55RS)

RAM memorizes codes by CPU's control.
IC1 outputs the sound source of the solo presets, rhythm pulse, key pulse and signals for switching solo presets.
IC2 turns out signals for POTS data, switching of orchestra presets, turning on LEDs, etc.

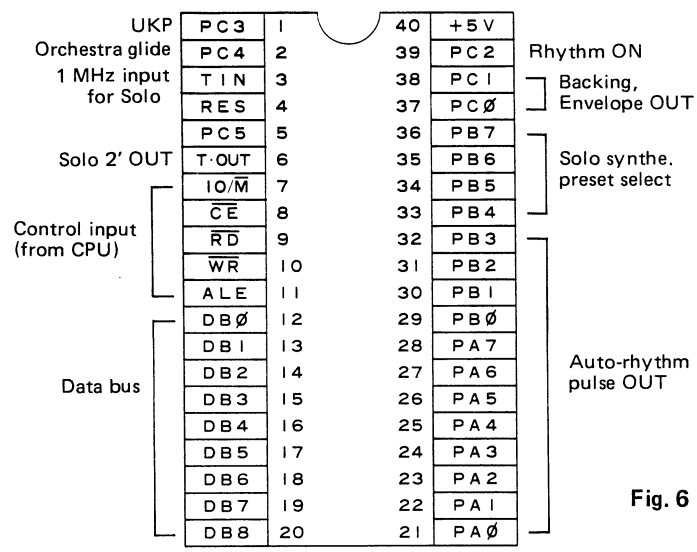


Fig. 6

IC2

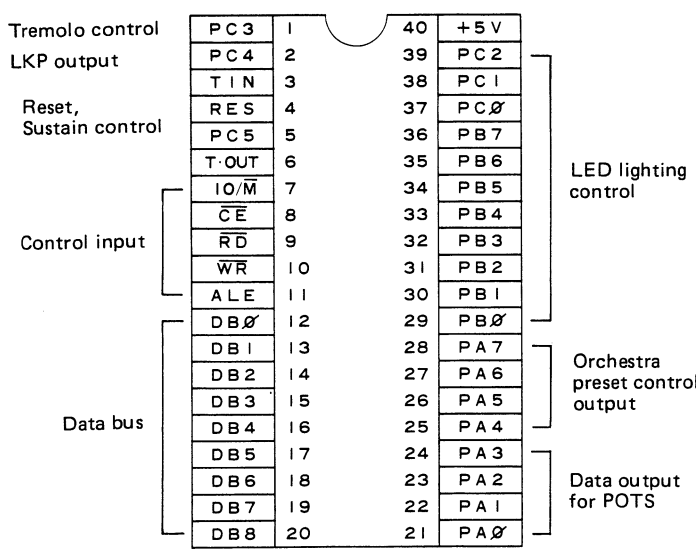


Fig. 7

■ POTS (VC4050B)

POTS is an LSI which generates the upper, lower and pedal tones (functions of dividing, keying, waveform conversion) in 1-chip, and its operation is done with digital 6-bit data sent from IC2 (ROM).

Terminals

Programmable organ tone synthesizer VC4050B

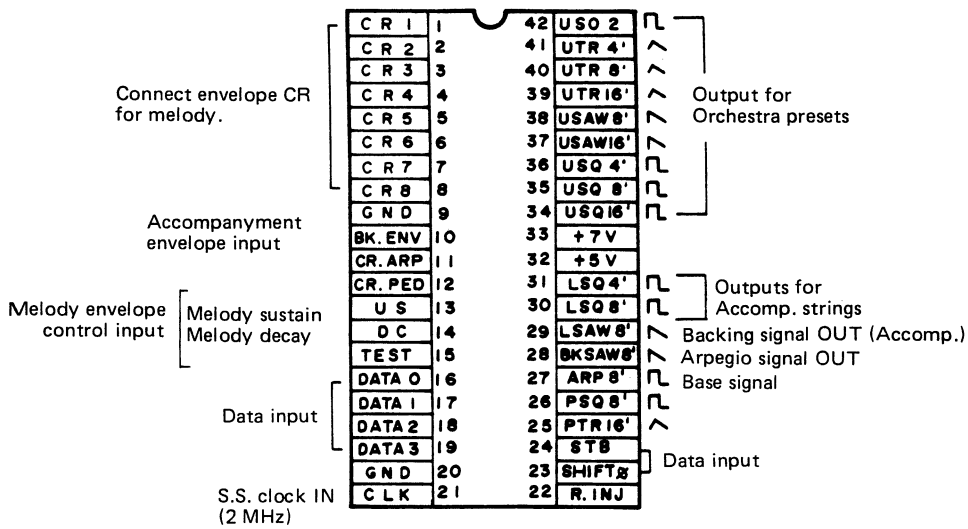


Fig. 8

■ Internal block diagram

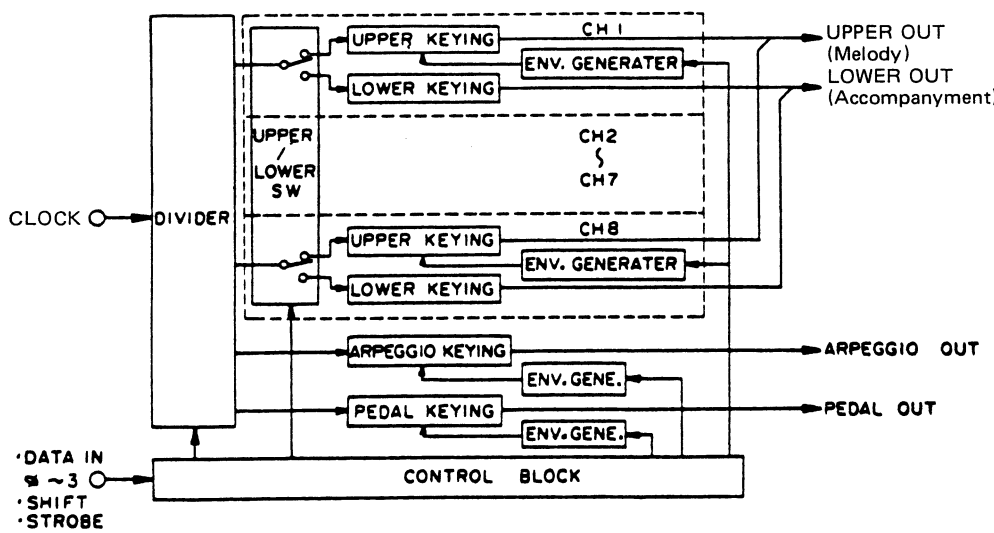


Fig. 9

Disassembly

1. Removal of the base cover

1) Remove the battery cover first, then take out batteries.
2) Remove 10 tapping screws A .
3) Remove 4 screws with washers B .
4) Remove 2 tapping screws C .
5) Remove the cover taking special care.

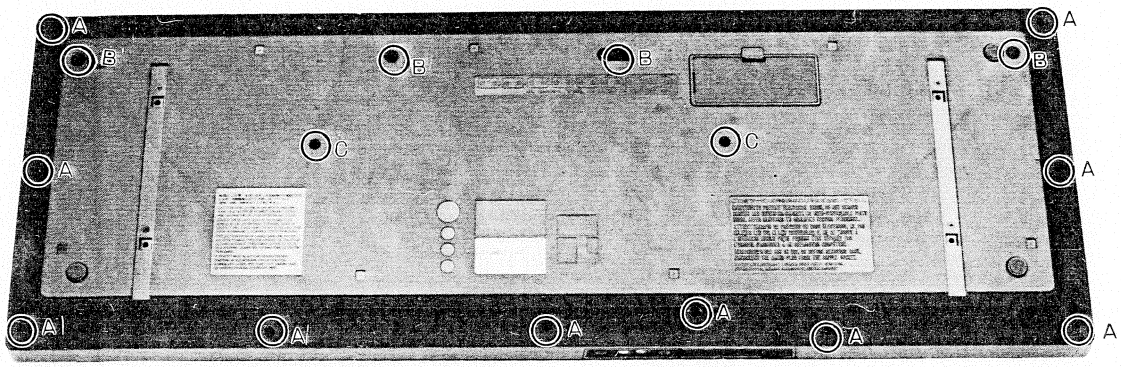


Fig. 10

2. Checking up voltages on the PC board

- In case of checking up almost all parts of boards except a part of the CP board, remove 4 screws fixing the RS board as shown in Fig. 1.
- When checking up the innermost part of the CP board, remove the board, transformer and battery holder first.

Fig. 11

Note: When re-assembling the boards and parts removed once, take great care not to make a mistake in applying screws. Screws for plastics have larger pitches while smaller pitches for steel goods.

3. Removal of volume control knobs and switch knobs

1) Knobs of volume controls can be removed by pulling outwards.
2) To remove switch knobs place the board as shown in Fig. 11 and push out them with a minus screwdriver or the like through the square hole of the board. When fitting knobs again, take care about colors of knobs. (Refer to page 19.)

4. Removal of PC board

Refer to Fig. 11. Remove 10 screws fixing switches in the hole of the CP board and 4 screws fastening the board. Slide volume control knobs can be removed by pulling the board upwards.

5. Removal of manual keys

1) After completion of the above item 4, remove 8 screws fastening the key chassis to remove the chassis.
2) Removal of key
   Depressing the point C of the figure pull it in the direction of D to remove.
   When removing a black key, first remove two white keys next to it and remove the black key in the same manner as for white keys.
3) Fitting of keys
   Taking care about setting a coil spring on the projection of the key chassis, press the point E and insert the key into a square hole F.

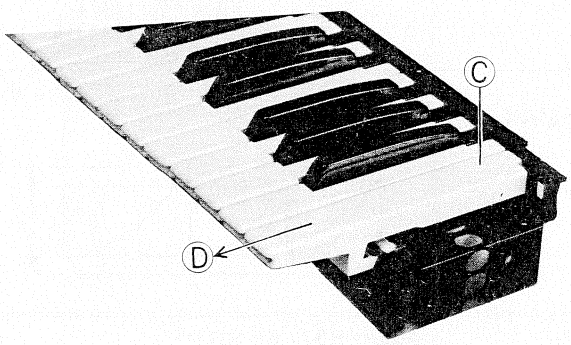


Fig. 12

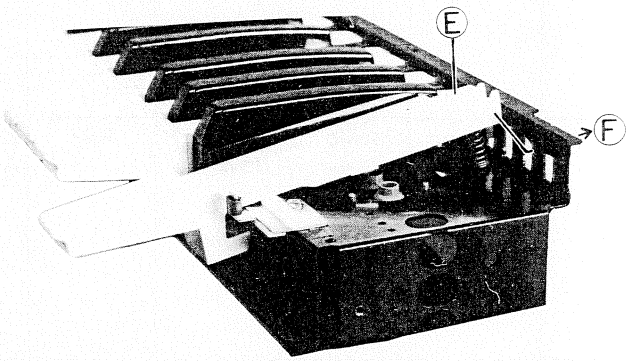


Fig. 13

6. Removal of the music stand (smoked cover)

Remove screws inside (see Fig. 14), and push the cover holder with a screwdriver and the like in the direction of the arrow mark (removal on one side only). After that stand the cover and it will be removed easily.

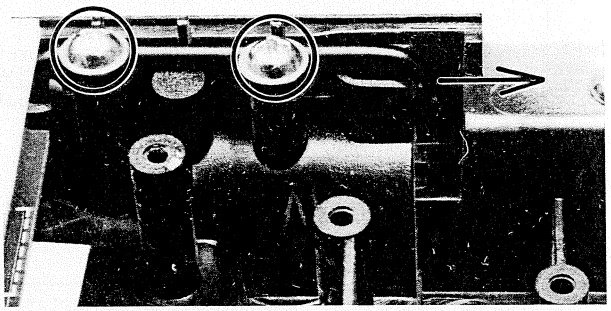
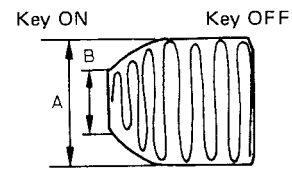
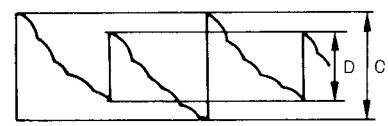
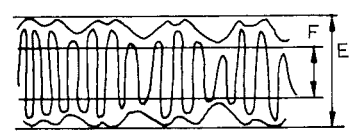


Fig. 14

Adjustment

Adjustments should be performed in the order of the numbers.

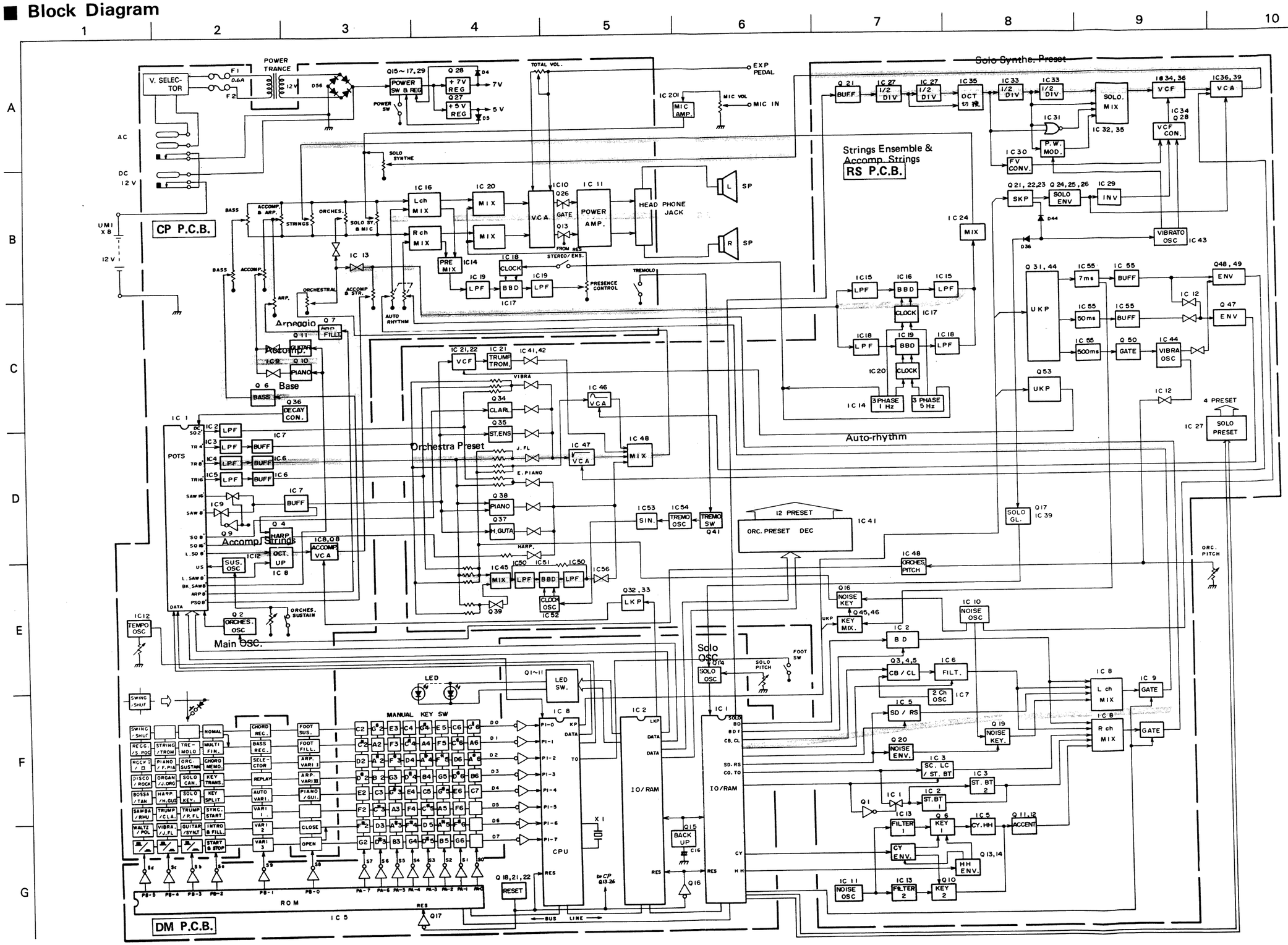
No.	Item	Measuring device	Adjusting point	Measuring point	Conditions	Adjusting Method
1	Main oscillator frequency (Organ)	Frequency counter	CP Board L1 coil	R17	Orchestra preset: Organ Orchestra volume: MAX. Main pitch: Center	Depressing A6 key (highest La) turn the coil L1 so that the frequency becomes 7072 Hz.
2	Solo oscillator frequency (Solo, Synthe.)	By ear	DM Board L1 coil		Solo preset: Pan flute Solo volume: Center Orchestra preset: Organ Orchestra volume: Center Solo pitch: Center	Depressing a key as your option and hearing sound, adjust L1 so that the sound becomes zero beat.
3	Accomp. strings envelope	Oscillo-scope	CP Board R229	R45	Key split: 1 Accomp. string: MAX.	Turning ON and OFF C3 key repeatedly adjust R229 to obtain the following value. A : B = 2 : 1 
4	Accomp. strings signal	Oscillo-scope	CP Board R228	R27	Key split: 1 Accomp. string: MAX.	Turning ON A2 key adjust R228 so that C is equal to D. 
5	Tremolo speed	Frequency counter	RS Board R521	Junction of R446 & R447	Tremolo SW: ON	Adjust R521 for 6.6 Hz.
6	Brass VCF cutoff	Oscillo-scope or AC valve voltmeter	RS Board R520	AUX OUT L-ch	Orchestra preset: Trombone Orchestra volume: MAX.	Turn R520 counterclockwise to open VCF and turn C4 key ON, too, to measure the value of level. Then turning C6 key ON in the same condition, adjust R520 to obtain the same value as the former.
7	Solo VCF cutoff frequency	Oscillo-scope or AC valve voltmeter	RS Board R321	AUX OUT L-ch	Solo preset: Pan flute Solo volume: MAX.	Turn R320 fully counterclockwise (continuous sound can be heard even in key OFF condition, then turn R321 counterclockwise (VCF open). Turn E2 key ON and measure value of the level. Then, holding C6 key turned ON, adjust R321 to obtain the same value as the former.
8	Solo VCA cutoff level	Oscillo-scope	RS Board R320	AUX OUT L-ch	Solo preset: Pan flute Solo volume: MAX.	Turning on A6 key repeatedly, adjust R320 to obtain the following value. E : F = 2 : 1 

Preset Chart

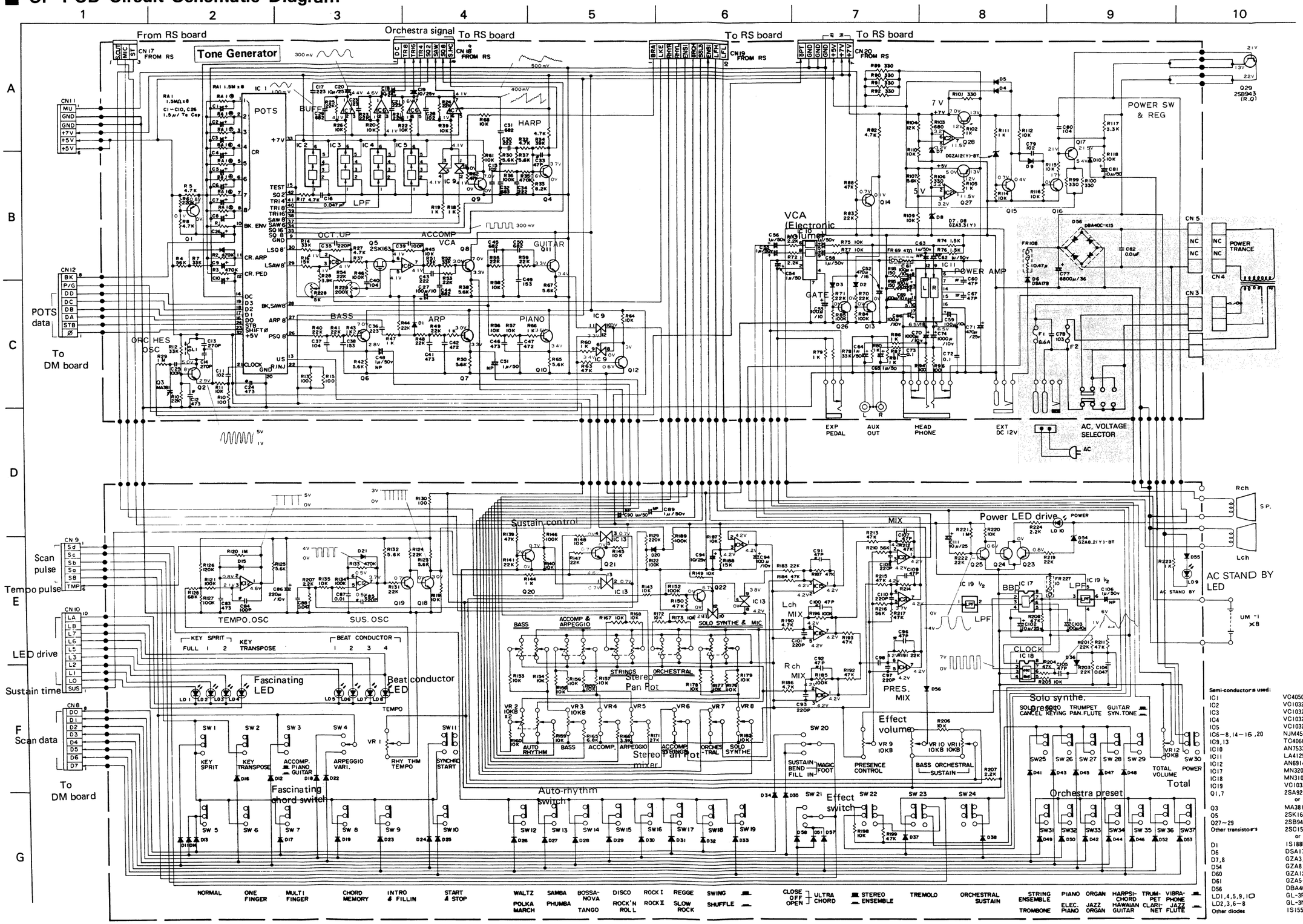
Orchestra preset	Sound Source									Preset SW	Envelope			Effect					Output Waveform	
	SQ2′	SQ8′	SQ16′	TR4′	TR8′	TR16′	SAW 8′	SAW 16′	Noise		Percus.4′	Decay	Sustain time	Vibrato	Rep.	ST. ENS.	VCA	VCF	Waveform	Envelope
	2′	8′	16′	4′	8′	16′	8′	16′			Q47	(DC)	(US)							
Vibraphone	○			○		○				IC41 9-8		○ D77	Med.		○		○			
Jazz flute					○				○	IC41 11-10	○		Med.		○		○			
Trumpet							○			IC56 1-2			Med.					○		
Clarinet		○								IC41 1-2			Med.	○			○			
Harpsichord			○				○			IC42 4-3		○ D76	Med.							
Hawaiian guitar							○			IC42 8-9		○ D72	Med.	○						
Organ	○			○	○	○				IC56 4-3 Q39			None							
Jazz organ				○	○	○			○	IC56 4-3	○		None							
Piano					○		○			IC42 10-11		○ D75	Med.							
Elec. Piano				○	○					IC42 2-1		○ D73	Med.							
Strings ensemble							○			IC41 3-4		○ D74	Med.			○	○			
Trombone								○		IC56 1-2			Med.					○		

Solo synthe. preset	Sound source	Converted waveform	Envelope			VCF fc		Noise	Effect			Output Waveform	
			Attack	Sustain level	Release time				Duty mod.	Repeat		Waveform	Envelope
Guitar	2′	16′	Fast	Low	Long	Low							
Synthe. tone	2′	16′	Fast	Low	Long	Med.			○				
Trumpet	2′	16′	Mod.	Low	Long	Med.			○				
Pan flute	2′	8′	Slow	High	Short	High		○		○			

■ Block Diagram



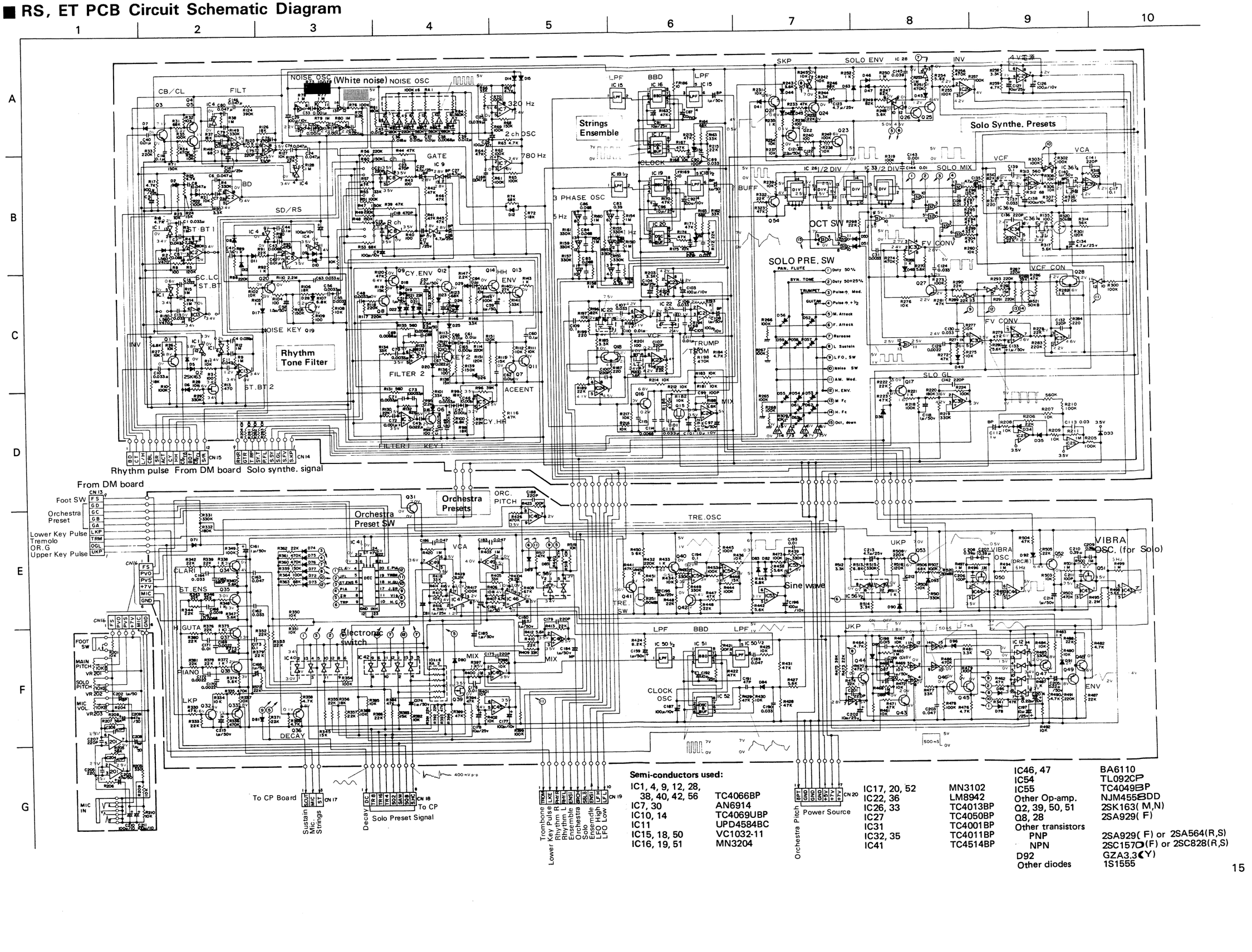
■ CP PCB Circuit Schematic Diagram



Semi-conductors used:

IC1	VC4050B(H)
IC2	VC1032-04
IC3	VC1032-03
IC4	VC1032-02
IC5	VC1032-01
IC6~8,14~16,20	NJM4558DD
IC9,13	TC4066BP
IC10	AN7533
IC11	LA4125T
IC12	AN6914
IC17	MN3204
IC18	MN3102
IC19	VC1032-11
Q1,7	2SA929(F) or 2SA564(R,S)
Q3	MA381(5A,6B)
Q5	2SK163(M,N)
Q27~29	2SB943(P,Q)
Other transistors	2SC1570NP(F) or 2SC828(R,S)
D1	1S188FM
D6	DSA17B-KD2
D7,8	GZA3,3(Y)
D54	GZA8,2(Y)
D60	GZA12(Y)
D61	GZA5-6(Y)
D56	DBA40C-K15
LD1,4,5,9,10	GL-3PR7
LD2,3,6~8	GL-3NG7
Other diodes	1S1555

■ RS, ET PCB Circuit Schematic Diagram



Semi-conductors used:

IC1, 4, 9, 12, 28, 38, 40, 42, 56	TC4066BP
IC7, 30	AN6914
IC10, 14	TC4069UBP
IC11	UPD4584BC
IC15, 18, 50	VC1032-11
IC16, 19, 51	MN3204
IC17, 20, 52	MN3102
IC22, 36	LM8942
IC26, 33	TC4013BP
IC27	TC4050BP
IC31	TC4001BP
IC32, 35	TC4011BP
IC41	TC4514BP
IC46, 47	BA6110
IC54	TL092CP
IC55	TC4049BP
Other Op-amp.	NJM4558DD
Q2, 39, 50, 51	2SK163(M,N)
Q8, 28	2SA929(F)
Other transistors	
PNP	2SA929(F) or 2SA564(R,S)
NPN	2SC1570(F) or 2SC828(R,S)
D92	GZA3.3(Y)
Other diodes	1S1555

■ DM. MKM. CC PCB Circuit Schematic Diagram

Semi-conductors used:

IC1, 2	MSM81C55RS
IC3, 4, 6, 7, 9	TC4049BP
IC5	MSM83C55-18RS
IC8	MSM80C49-40RS
Q1–11, 18	2SA929F
Q15	2SC3069
Other transistors	2SC1570NP(F) or 2SC828(R,S)
D1–5	1S1555
D6	MA381(5A, 6B)
Diodes in MKM P.C.B.	1S1555

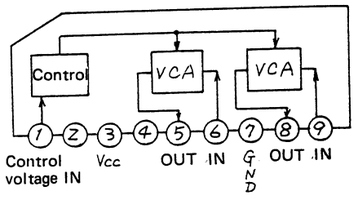
Semi-conductors used:

D101~108	1S1555
LD1~10	GL-5HD22

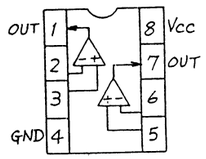
MKM P.C.B.
Manual Key Switch
DM P.C.B.
Solo synthe. signal
Rhythm run
To RS board
Upper Key Pulse
Orchestra glide
Tremolo
Lower Key Pulse
Orchestra
Preset
Foot Switch
POTS data
Piano/Guitor Backing
To CP board
Mute
Power source
CPU
ROM
IO/RAM
LED SW
SOLO OSC
BACK
INV.
RESET
Rhythm pulse
To RS board
Sustain
To LED
To CP board
Tempo
Scan pulse
To CP board
Scan data
CC P.C.B.
Compucorder SW
Compucorder LED
AUTO. VARI
REPLAY
SELECT
BASS
CHORD
BASS VARIATION
SELECTOR

IC Block Diagram

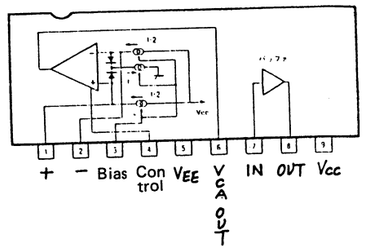
AN5733 VCA



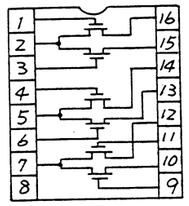
AN6914 Comparator



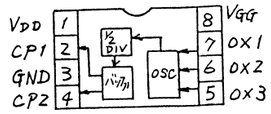
BA6110 Operational Amp.



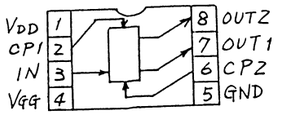
LM8942 MOS Inverter



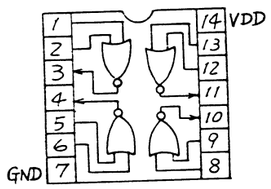
MN3102 BBD Clock Osc.



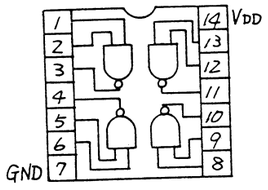
MN3204 512-stage BBD



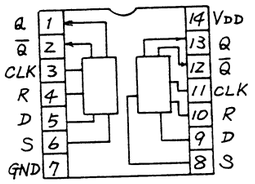
TC4001BP NOR Gate



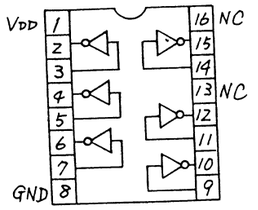
TC4011BP NAND Gate



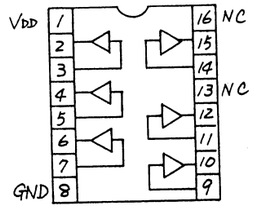
TC4013 D. Flip-flop



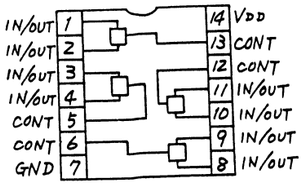
TC4049BP Buffer/Inverting



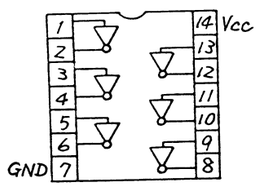
TC4050BP Buffer



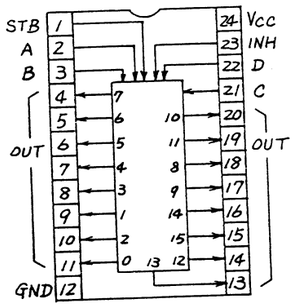
TC4066BP Bilateral Switch



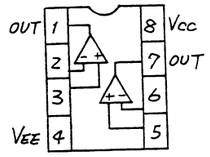
TC4069UBP Inverter



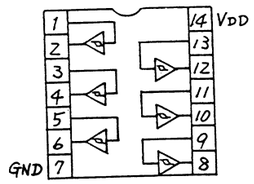
TC4514BP 4-16 Decoder



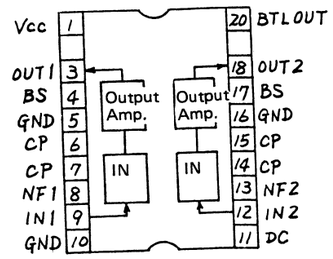
TL092CP Operational Amp.
NJM4558DD



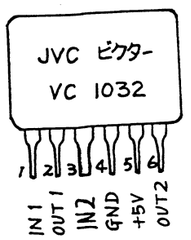
UPD4584BC Schmidt Trigger



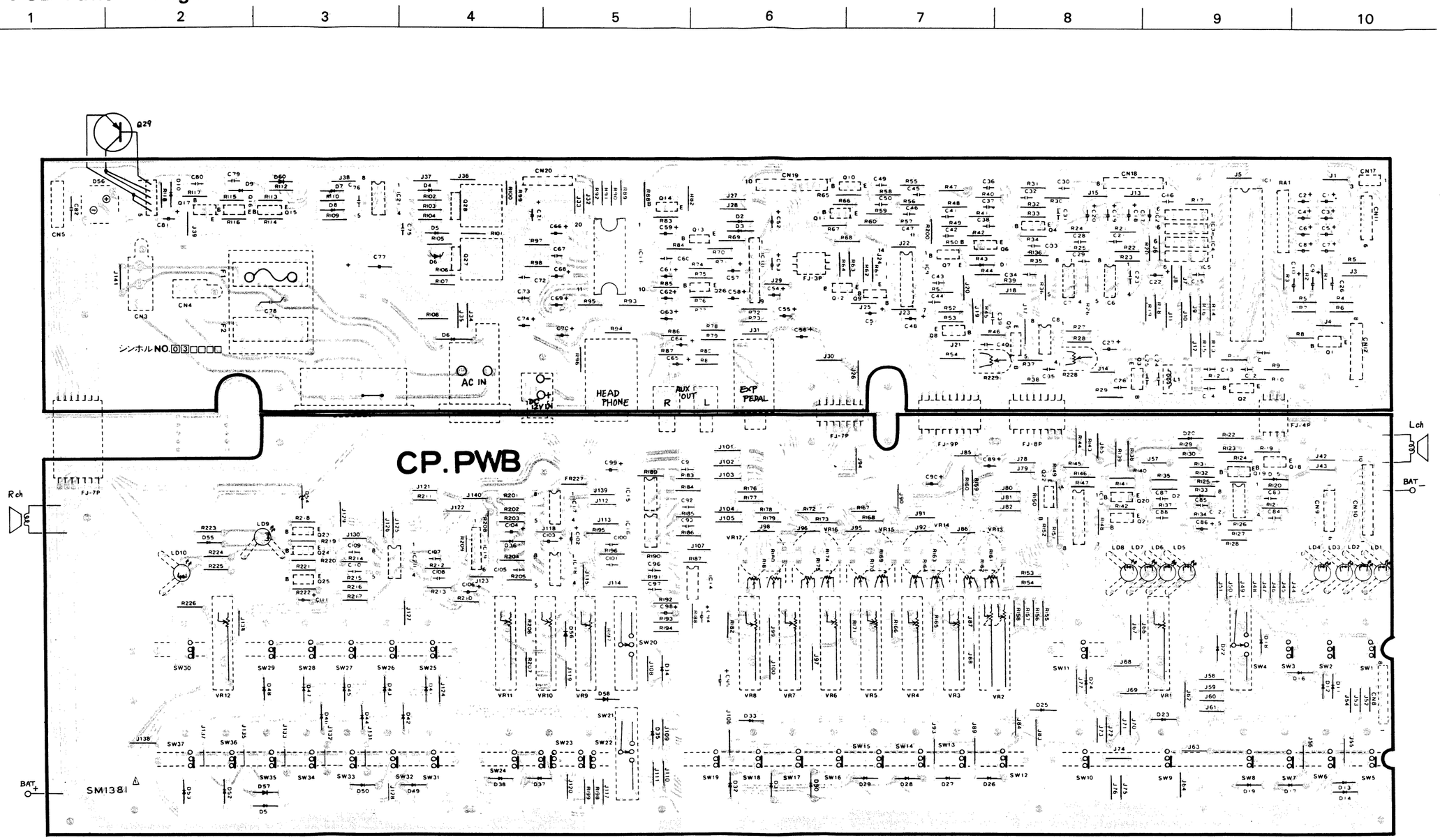
LA4125T 2-ch Power Amp.



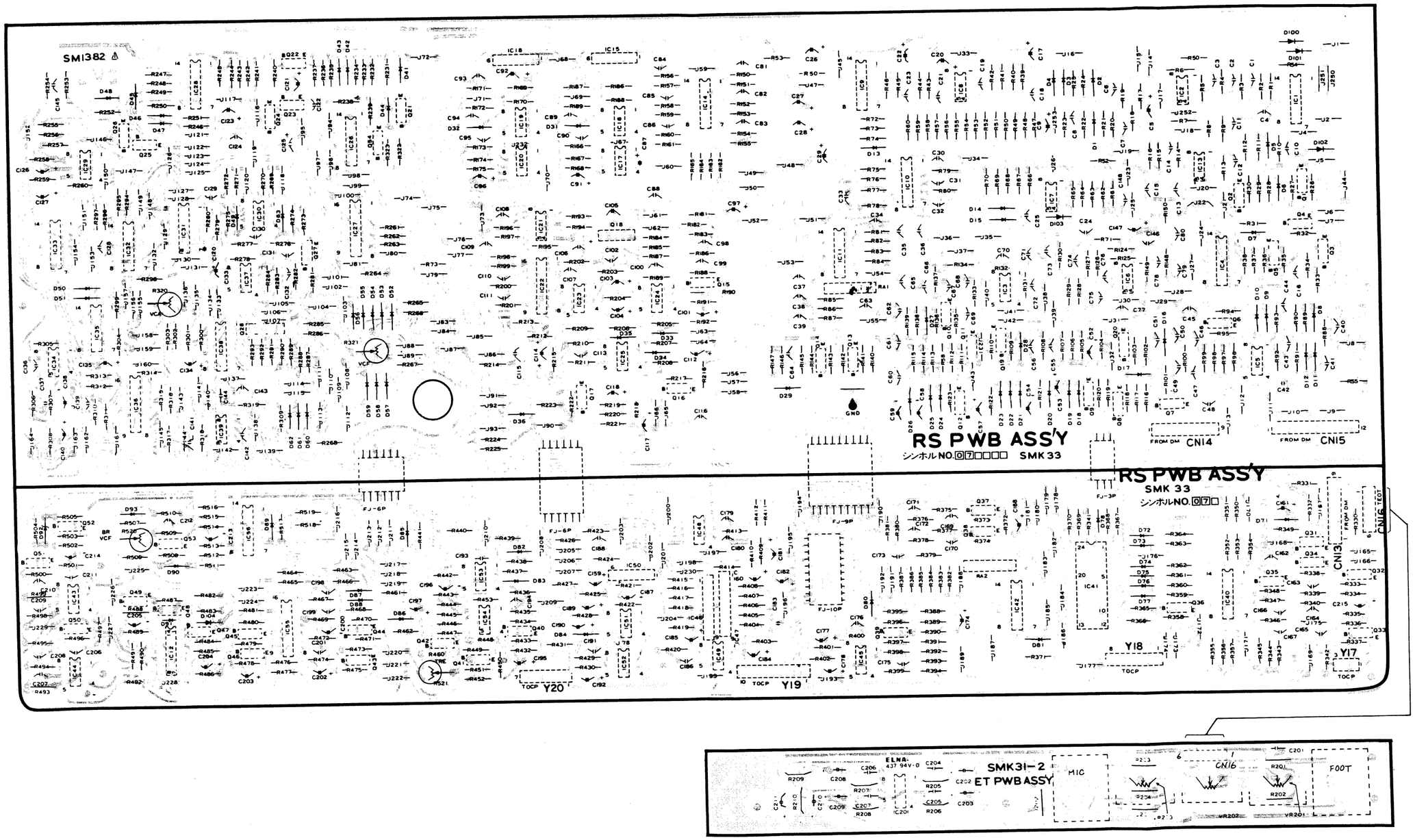
VC1032 Filter



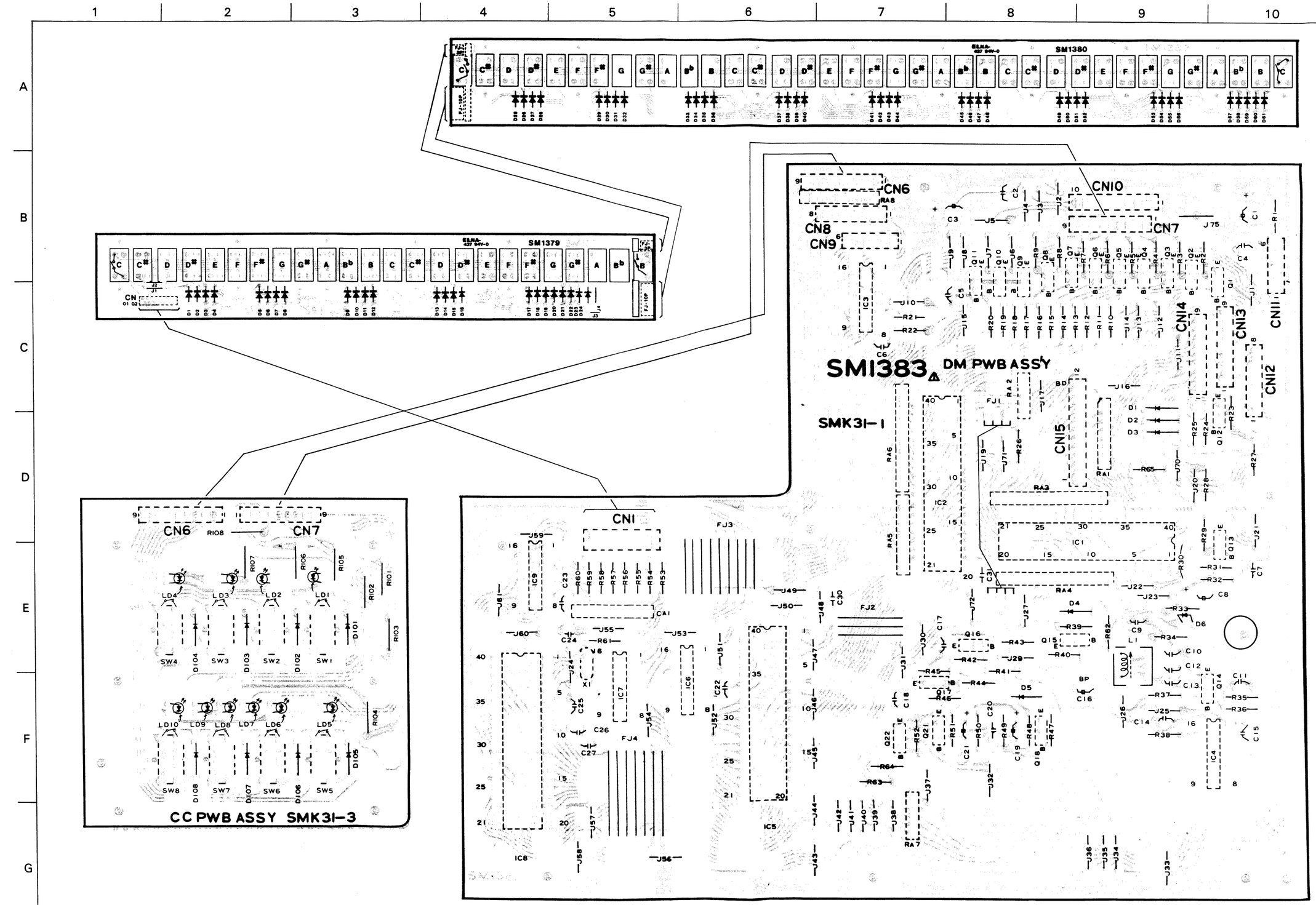
■ CP PCB Pattern Diagram



■ RS. ET PCB Pattern Diagram

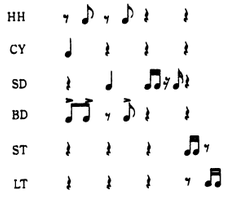


■ DM. MKM. CC Pattern Diagram

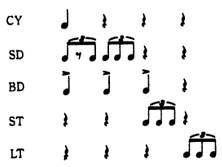


Rhythm Patterns

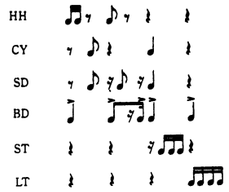
INTRO I (Rock I, Rock'n Roll)



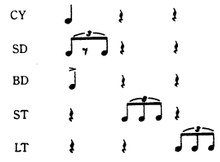
INTRO II (Swing, Shuffle, Reggae, Slow Rock)



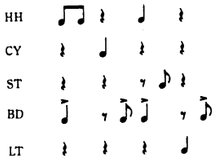
INTRO III (Samba, Disco, Rock II)



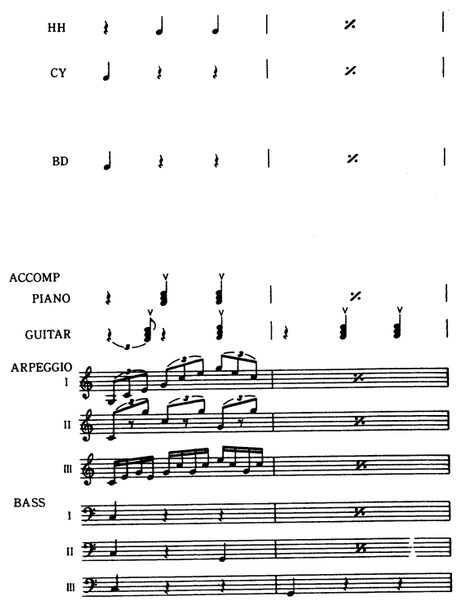
INTRO IV (Waltz)



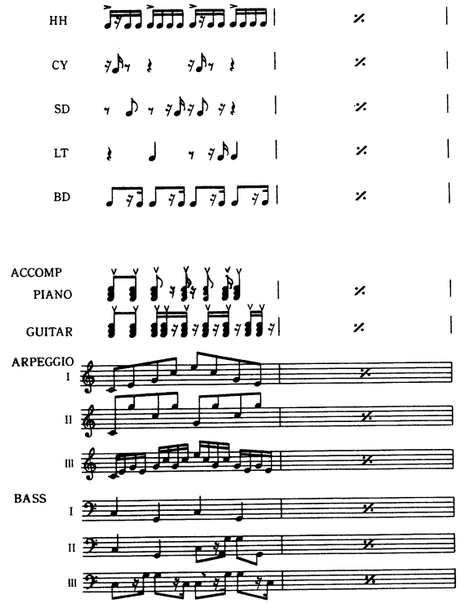
INTRO V (Bossa Nova, Polka March, Tango, Rhumba)



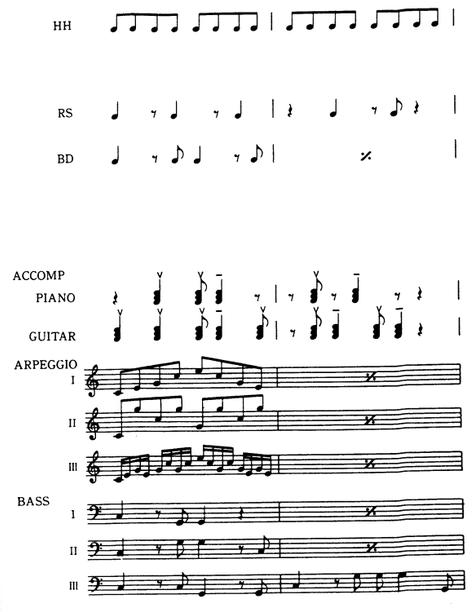
WALTZ



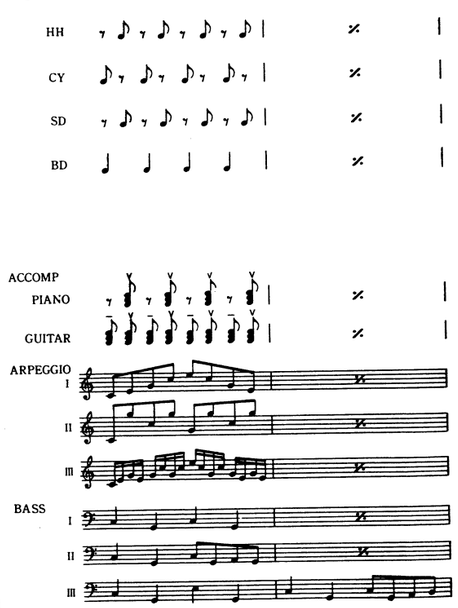
SAMBA



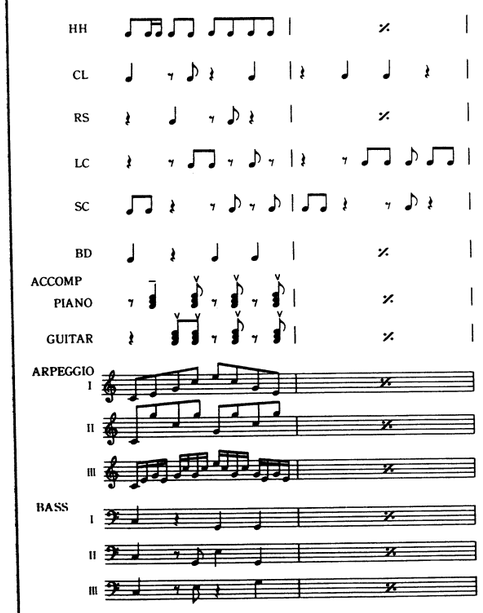
BOSSA NOVA



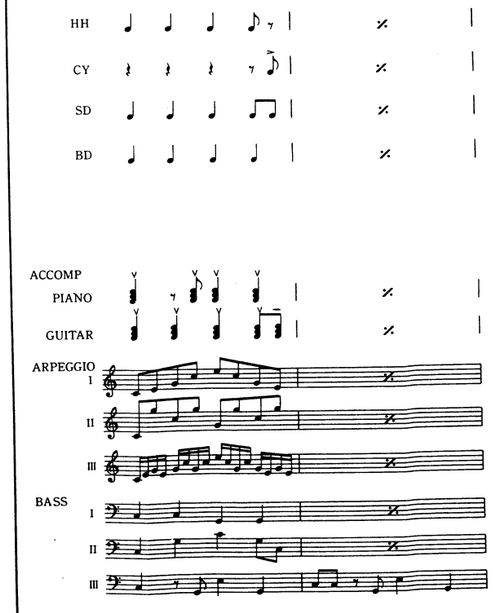
POLKA MARCH



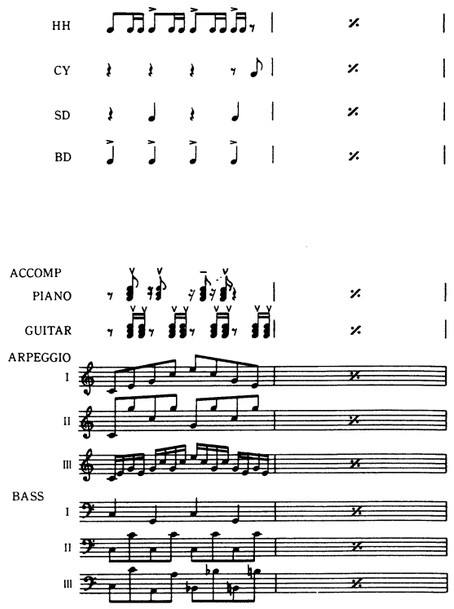
RHUMBA



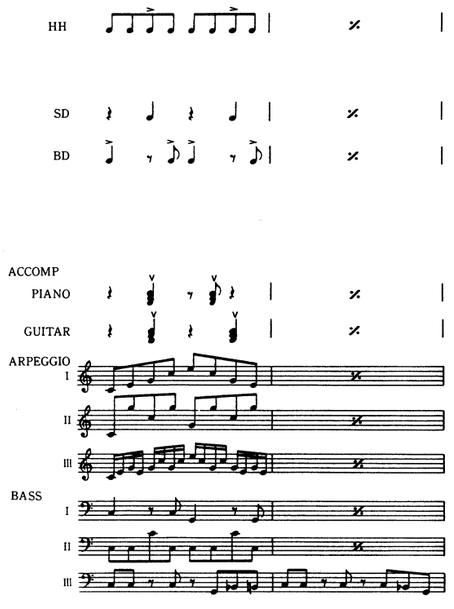
TANGO



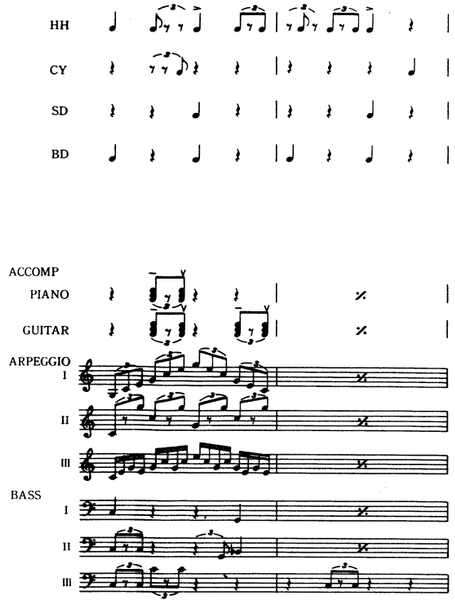
DISCO



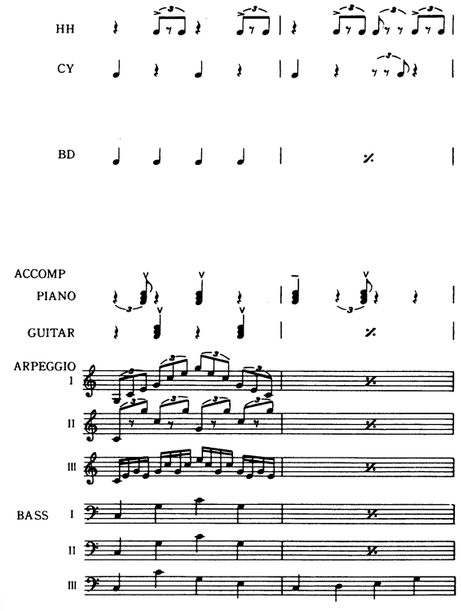
ROCK I (Rock 8)



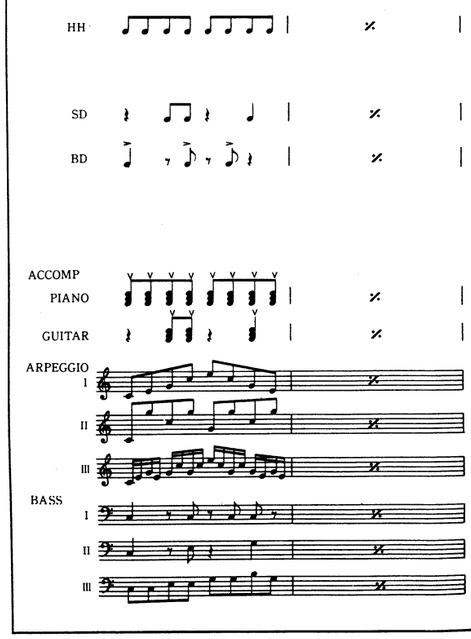
REGGAE



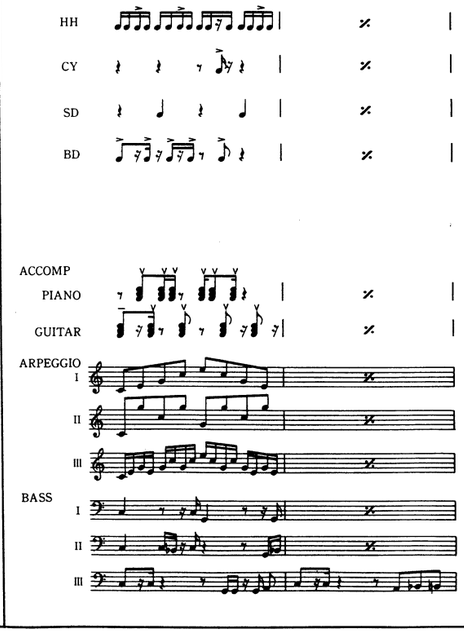
SWING



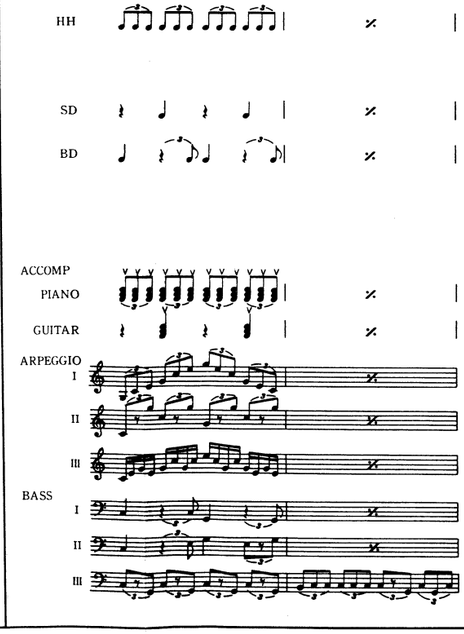
ROCK N ROLL



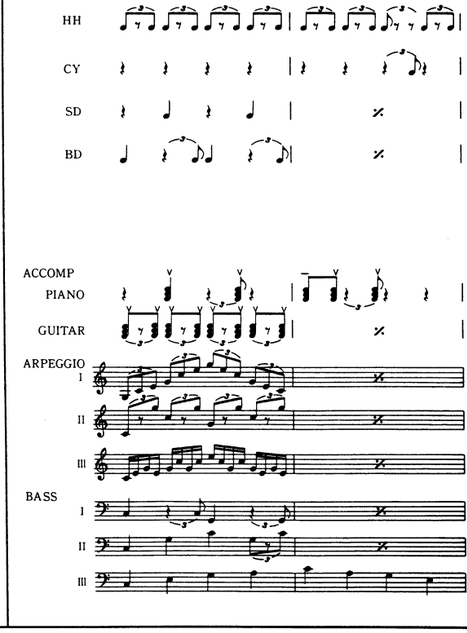
ROCK II (Rock 16)



SLOW ROCK (Ballad)



SHUFFLE



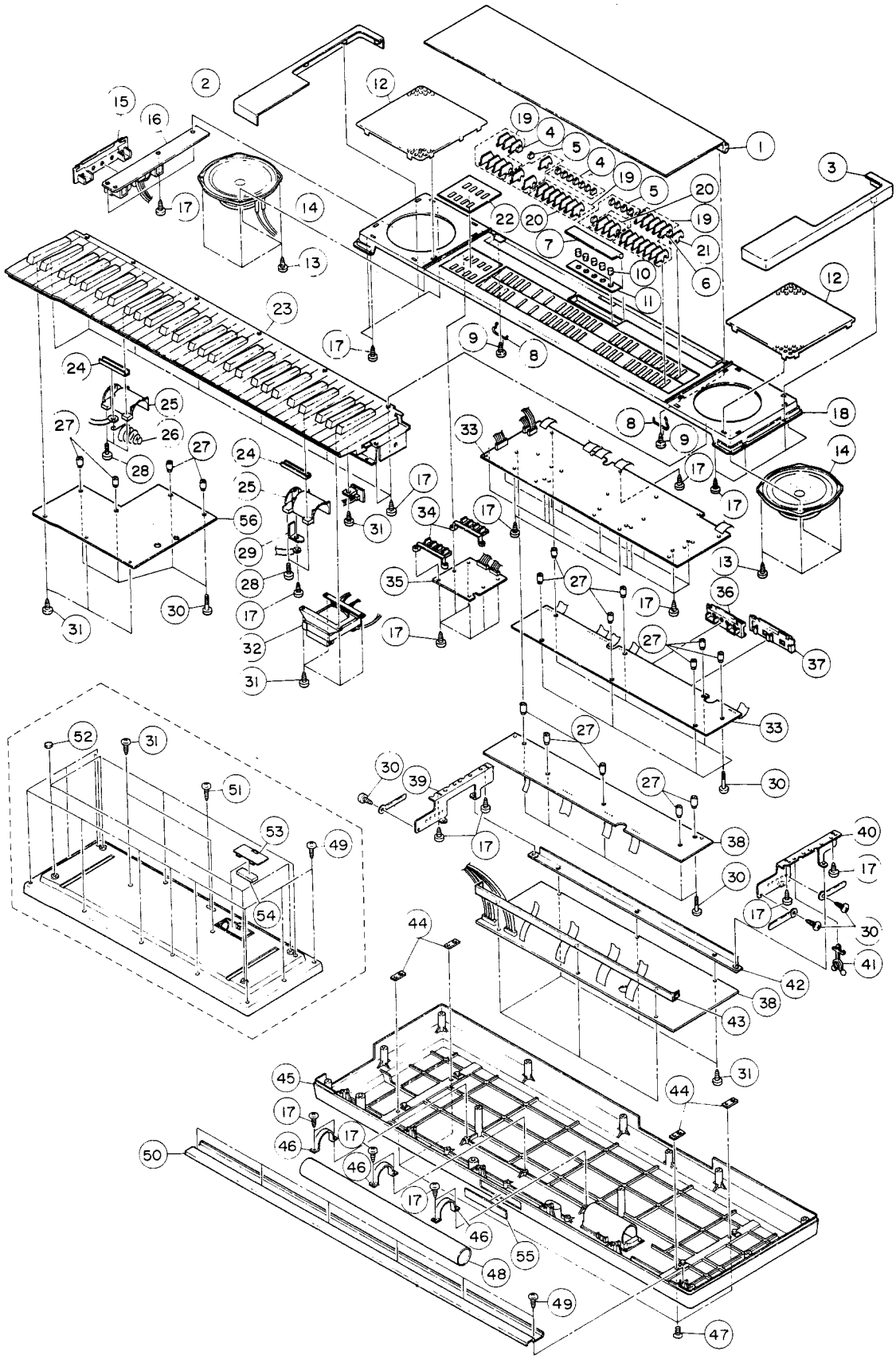
PARTS LIST

■ PARTS LIST BY KIND

Kind	⚠	Parts No.	Parts Name	Description	Q'ty
P.W.B. Ass'y		SMK29	MKM-6124 Board Ass'y	Manual Key Switch 1/2	1
		SMK30	MKM-6137 Board Ass'y	"	1
		SMK31-1	DM Board Ass'y	Digital & Memory	1
		SMK31-2	ET Board Ass'y	External	1
		SMK31-3	CC Board Ass'y	Compucorder	1
Semi-conductor		SMK32	CP Board Ass'y	Control & Power	1
		SMK33	RS Board Ass'y	Rhythm & Synthesizer	1
		MSM80C49-64RS	IC	CPU	1
		MSM83C55-20RS	"	ROM	1
		MSM81C55RS	"	RAM	2
		VC4050B(H)	"	POTS	1
		VC1032-01	"	Filter	1
		" -02	"	"	1
		" -03	"	"	1
		" -04	"	"	1
		" -11	"	"	4
		TC4001BP	"	NOR Gate	1
		TC4011BP	"	NAND Gate	2
		TC4013BP	"	D Flip-flop	2
		TC4049BP	"	Inversion Buffer	6
		TC4050BP	"	Buffer	1
		TC4066BP	"	Analog Switch	11
		TC4069UBP	"	Inverter	2
		TC4514BP	"	4-16 Decoder	1
		UPD4584BC	"	Schmitt Trigger	1
		MN3204	"	BBD	4
		MN3102	"	Clock Osc.	4
		NJM4558DD	"	Op-amp.	17
		TL092CP	"	"	1
		LM8942	"	MOS Inverter	2
		AN5733	"	VCA (Dual Attenuator)	1
		AN6914	"	Comparator	3
		BA6110	"	Op-amp.	2
		LA4125T	"	Power Amp.	1
		2SA798G	Transistor		2
		2SA929(F)	"		25
		2SB943(P,Q)	"		3
		2SC1570NO(F)	"		61
		2SC3069	"		1
		2SK163(M,N)	FET		5
		MA381(5A, 6B)	Varicap	for Master Oscillator	2
		DBA40C-K15	Diode	Power	1
		DSA17B-KD2	"		1
		1S1555	"		207
		1S188FM	"		1
		GZA3.3(Y)	Zener Diode		3
		GZA8.2(Y)	"		1
		GZA12(Y)	"		1
LED		GL-3PR7	LED	Red	5
		GL-3NG7	"	Green	5
		BL-5HD22	"	Compucorder	10
Ceramic coil		SMV2114	Ceramic Coil	CPU	1
		SMV2110	Osc. Coil	Master Oscillator	2
		SM40329-473	Super Capacitor	0.47 μF	1
Switch		SMV2102	Slide Switch		3

Kind	⚠	Parts No.	Parts Name	Description	Q'ty
Switch		SM40294-003	Push Switch		1
		" -007	"		1
		" -008	"		1
		" -009	"		1
		" -010	"		1
		" -011	"		1
		" -012	"		1
		SM40152	Tact Switch	Compucorder	8
		SMV2063	Key Switch	Manual Key	61
Volume		SMV2111	V. Resistor (Slide Volume)		11
control		SMV2119	" (")	Rhythm	1
		SMV2118	" (Volume)	Pan Pot	5
		SMV2080	" (")	Mic.	1
		SMV2090	" (")	Pitch	2
Knob		SM3926-SLV	Push Knob	Silver	27
		" -BLU	"	Blue	6
		" -RED	"	Red	1
		SM40367-SLV	Slide Knob	Silver	8
		" -BLU	"	Blue	6
		" -RED	"	Red	1
		SM3941-SLV	Round Knob	Pan Pot	5
		SM3940	Touch Knob	Compucorder	2
Jack	⚠	QMC0263-002-BS	AC Socket		1
		SMV2112	DC Jack		1
		QMS6312-018	Headphone Jack	Headphone	1
		QMS6303-015	Expression Jack	Expression	1
		SMV2107-WHT	Pin Jack	AUX OUT	1
		" -RED	"	"	1
		QMS6312-019	Mic. Jack	Microphone	1
		QMS6303-016	Foot Switch Jack	Foot Switch	1
Speaker		HSA1302-01D	Speaker	14 cm	2
Transformer	⚠	SMV2121-BS	Transformer		1
Cord	⚠	QMP3950-224	Power Cord	for Model N	1
	⚠	QMP9017-013-BS	"	for Model B	1
	⚠	QMP2550-200	"	for Model H	1
Fuse	⚠	QMF51A2-R40-BS	Fuse	T400 mA	1
	⚠	" -R20-BS	"	T200 mA	1

Cabinet Assembly



PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
1		SM2765	Smoke Cover		1
2		SM1377-00L-WHT	Side Panel		1
3		" -00R-WHT	"		1
4		SM40367-SLV	Slide Knob		8
5		" -BLU	"		6
6		" -RED	"		1
7		SM3942	Pan Pot Cover		1
8		SM3952	Cover Holder		2
9		GBSF3012Z	T. Screw		2
10		SM3941-SLV	Round Knob		5
11		SM3946	Pan Pot Plate		1
12		SM3951	Speaker Net		2
13		GBSF3008Z	T. Screw		8
14		HSA1302-01D	Speaker		2
15		SM3943-001	External Plate - 3		1
16		SMK31-2	ET. P.W.B. Ass'y		1
17		SBSF3008Z	T. Screw		50
18		SM1376-00B	Control Panel		1
19		SM3926-SLV	Push Knob		27
20		" -BLU	"		6
21		" -RED	"		1
22		SM3944	Compu. Plate		1
23			Manual Key Ass'y		1
24		SM40399	B. Terminal Bracket		2
25		SM3928	Battery Holder		2
26		SM40374	Battery Spring		1
27		SM40302-310	Bushing		16
28		SBST3020Z	T. Screw		5
29		SM40373	Battery Terminal		1
30		SBSF3025	T. Screw		18
31		SBST3008Z	"		27
32	⚠	SMV2121-BS	Power Transformer		1
33		SMK32-B	CP P.W.B. Ass'y		1
34		SM3940	Touch Knob		2
35		SMK31-3	CC P.W.B. Ass'y		1
36		SM3931-001	External Plate - 2		1
37		SM3930-001	" - 1		1
38		SMK33	RS P.W.B. Ass'y		1
39		SM3950-002	P.C.B. Bracket		1
40		" -001	"		1
41		QHW1115-001	Wire Clamp		1
42		SM3949-001	P.C.B. Bracket B		1
43		" -002	"		1
44		SM40333-002	Foot Bracket		4
45		SM1378-001	Base		1
46		SM40370	Pipe Holder		3
47		SSSP3010B	T. Screw		4
48		SM40369	Battery Pipe		1
49		SBSF3012M	T. Screw		16
50		SM3945	Front Panel		1
51		DPSP4010Z	Screw		4
52		SM40334	Foot Felt		4
53		SM3927	Battery Cover		1
54		SM40330-005	Sponge		1
55		C41418-C	Brand Mark		1
56		SMK31-1	DM P.C.B. Ass'y		1

Manual Key Assembly

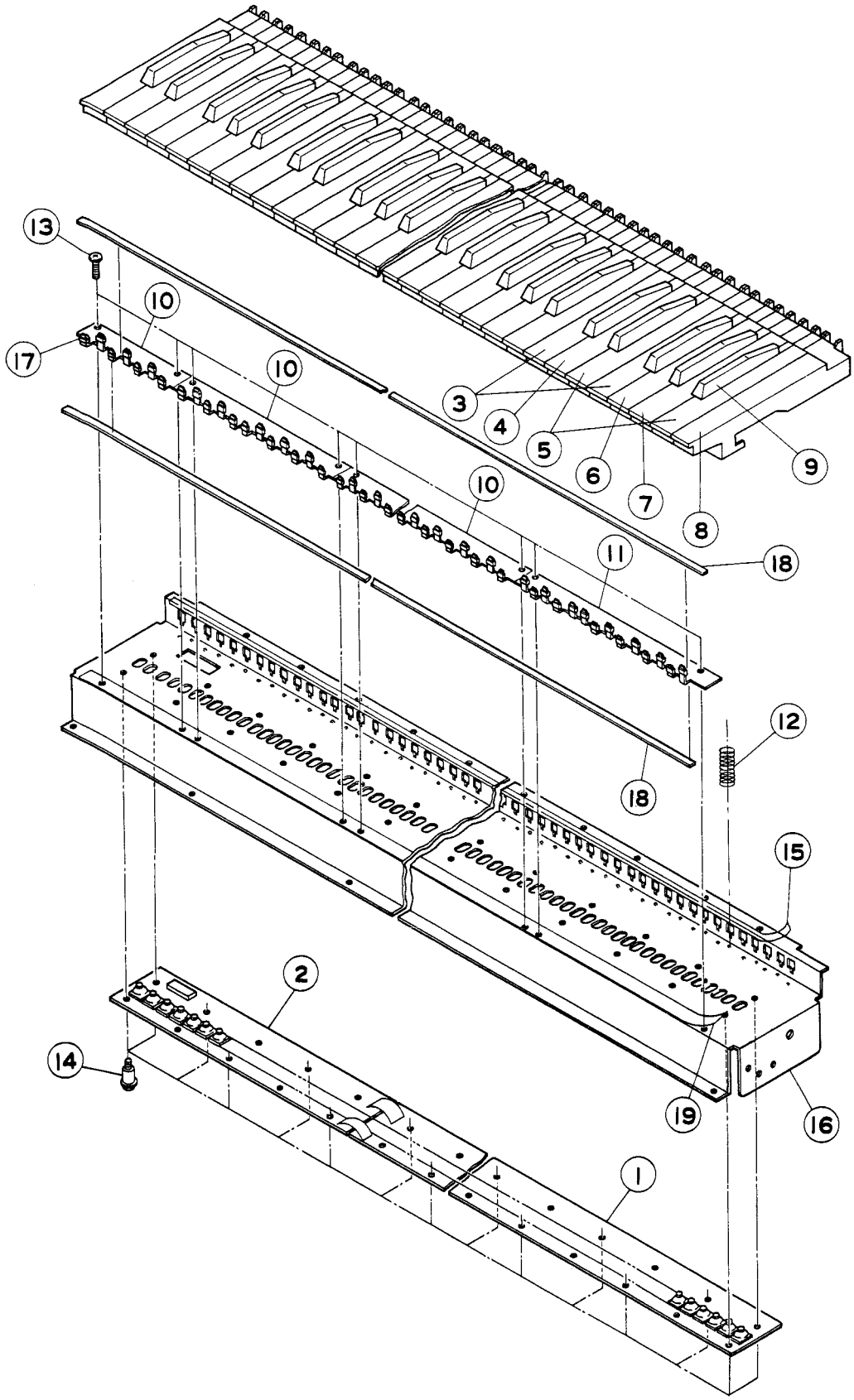


Fig. 26

■ MANUAL KEY ASSEMBLY PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
			MK-61 Assembly		1
1		SMK30	MKM-6137 Board Assembly		1
2		SMK29	MKM-6124 Board Assembly		1
3		SM2732-0CF	White Key	Do (C), Fa (F)	10
4		" -00D	"	Re (D)	5
5		" -0EB	"	Mi (E), Si (B)	10
6		" -00G	"	So (G)	5
7		" -00A	"	La (A)	5
8		" -0CC	"	Do (C) in the Highest Octave	1
9		SM3860	Black Key		25
10		SM3861-012	Key Guide		4
11		" -013	"		1
12		SM40281	Key Spring		61

■ MKM BOARD ASSEMBLY PARTS LIST

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK29	MKM-6124 Board Assembly	Bass	1
		1S1555	Diode		24
		SMV2063	Key Switch		24
		SS31053-016	Card Fit Connector		1
		SS31055-16152	Card Cord		1
		SMK30	MKM-6137 Board Assembly	Treble	1
		1S1555	Diode		37
		SMV2063	Key Switch		37

■ DM BOARD ASSEMBLY PARTS LIST

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK31-1	DM Board Assembly		1
IC8		MSM80C49-64RS	IC	CPU	1
IC5		MSM83C55-20RS	"	ROM	1
IC1, 2		MSM81C55RS	"	RAM	2
IC3, 4, 6, 7, 9		TC4049BP	"	Inversion Buffer	5
Q1–11, 18		2SA929F	Transistor		12
Q		2SC1570NP(F)	"		7
Q15		2SC3069	"		1
D6		MA381(5A, 6B)	Varicap		1
D1–5		1S1555	Diode		5
X1		SMV2114	Ceralock		1
C16		SM40329-473	Super Capacitor	0.47 μF	1
L1		SMV2110	Osc. Coil		1
RA1		EXB-P87104K	Resistor Array	100 kΩ	1
RA2, 7		EXB-P84104K	"	100 kΩ	2
RA3		EXB-P812103K	"	10 kΩ	1
RA4		EXB-P812104K	"	100 kΩ	1
RA5		EXB-P88104K	"	100 kΩ	1
RA6		EXB-P811104K	"	100 kΩ	1
RA8		EXB-P88103K	"	10 kΩ	1
R1	⚠	QRZ0052-100	Fusible Resistor		1
CA1		EXF-P8101MW	Capacitor Array		1
		QET61EM-106Z	E. Capacitor		1
		QET61AM-227Z	"		1
		SS3660-002	IC Socket	for IC5, 8	2
CN1		SS31053-016	Card Fit Connector		1

■ RS BOARD ASSEMBLY PARTS LIST

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK33	RS Board Assembly		1
IC41		TC4514BP	IC	4-16 Decoder	1
IC1,4,9,12,28,38,40,42,56		TC4066BP	"	Analog Switch	9
IC55		TC4049BP	"	Inversion Buffer	1
IC26, 33		TC4013BP	"	Flip-flop	2
IC27		TC4050BP	"	Buffer	1
IC10, 14		TC4069UBP	"	Inverter	2
IC31		TC4001BP	"	NOR Gate	1
IC32, 35		TC4011BP	"	NAND Gate	2
IC11		UPD4584BC	"	Inverter	1
IC16, 19, 51		MN3204	"	BBD	3
IC17, 20, 52		MN3102	"	Clock Oscillator	3
		NJM4558DD	"	Op-amp.	19
IC54		TL092CP	"	"	1
IC22, 36		LM8942	"	FET Array	2
IC7, 30		AN6914	"	Comparator	2
IC46, 47		BA6110	"	VCA	2
IC15, 18, 50		VC1032-11	"	Filter	3
Q8, 28		2SA798G	Transistor		2
Q		2SA929(F)	"		11
Q		2SC1570(F)	"		32
Q2, 39, 50, 51		2SK163(M,N)	FET		4
D92		GZA3.3(Y)	Zener Diode		1
		1S1555	Diode		84
RA2		EXB-P86103K	Resistor Array		1
RA1		EXB-P86104K	"		1
	⚠	QRZ0052-100	Fusible Resistor		4
R521,520,321,320		QVP8A0B-054		50 kB	4
		QFV81HJ-394	TF Capacitor		8
		QET61AM-107Z	E. Capacitor	100 μF/10 V	15
		" -227Z	"	220 μF/10 V	6
		QET61EM-475Z	"	4.7 μF/25 V	4
		" -106Z	"	10 μF/25 V	5
		QET61HM-105Z	"	1 μF/50 V	21
		QEC61HM-224Z	"		2
		" -155Z	"		1
		QEN61EM-475Z	NP Capacitor		2
		QEN61HM-105Z	"		1

■ CP BOARD ASSEMBLY PARTS LIST

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK32	CP Board Assembly		1
IC1		VC4050B(H)	IC	P.O.T.S.	1
IC5		VC1032-01	"	Filter	1
IC4		" -02	"	"	1
IC3		" -03	"	"	1
IC2		" -04	"	"	1
IC19		" -11	"	"	1
IC6,7,8,14,15,16,20		NJM4558DD	"	Op-amp.	7
IC9, 13		TC4066BP	"	Analog Switch	2
IC10		AN5733	"	VCA	1
IC11		LA4125T	"	Power Amp.	1
IC12		AN6914	"	Comparator	1
IC17		MN3204	"	BBC	1
IC18		MN3102	"	Clock	1
Q1, 7		2SA929(F)	Transistor		2
Q27, 28, 29		2SB943(P,Q)	"		3
Q		2SC1570NP(F)	"		22
Q5		2SK163(M,N)	FET		1
Q3		MA381(5A, 6B)	Varicap		1
D56		DBA40C-K15	Diode		1
D6		DSA17B-KD2	"		1
		1S1555	"		49
D1		1S188FM	"		1
D7, 8		GZA3.3(Y)	Zener Diode		2
D54		GZA8.2(Y)	"		1
		GZA12(Y)	"		1
LD1, 4, 5, 9, 10		GL-3PR7	LED	Red	5
LD2, 3, 6, 7, 8		GL-3NG7	"	Green	5
L1		SMV2110	Osc. Coil		1
R229		QVP8A0B-025	V. Resistor	200 kB	1
R228		" -053	"	5 kB	1
RA1		EXB-P87105J	Resistor Array	1.5 M	1
R108	⚠	QRZ0064-R47	Fusible Resistor	0.47 Ω	2
R227	⚠	QRZ0052-100	"	10 Ω	1
R69	⚠	QRZ0052-470	"	4.7 Ω	1
C82		QCF32HP-103	"		2
		QCF31HP-102	"		1
		" -473	"		1
		QFM31HJ-	M. Capacitor		27
C77		QEZ0061-688	E. Capacitor	6800 μF/36 V	1
C71		QET51ER-477	"	470 μF/25 V	1
C70, 74		QET51AR-108	"	1000 μF/10 V	2
C52		QET51CR-477	"	470 μF/16 V	1
		QET61AM-107	"	100 μF/16 V	12
		QET61EM-106	"	10 μF/25 V	15
		QET61HM-105	"	1 μF/50 V	11
		QEJ61CM-155	"	1.5 μF/16 V	11
SW4, 20, 21		SMV2102	Slide Switch		3
SW11		SM40294-003	Push Switch		1
SW30		" -007	"		1
SW25–29		" -008	"		1
SW31–37		" -009	"		1

■ CP BOARD ASSEMBLY PARTS LIST (Continued)

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
SW22–24		SM40294-010	Push Switch		1
SW12–19		" -011	"		1
SW5–10		" -012	"		1
SW1–3		" -013	"		1
VR1, 3–12		SMV2111	V. Resistor (Slide Volume)		11
VR2		SMV2119	" (")	Rhythm	1
VR13–17		SMV2118	" (Volume)	Pan Pot	5
	⚠	QMC0262-003	AC Socket		1
		SMV2112	DC Jack		1
		QMS6312-018	HP Jack	Headphone	1
		QMS6303-015	EXP Jack	Expression	1
		SMV2107-WHT	Pin Jack	AUX OUT	1
		" -RED	"	"	1
		SMV2082	Heat Sink	for IC11	1
		SMV2155	"	for Q27, 28	2
		SM3660	IC Socket	for IC1	1
		SM3929	LED Mount		10
	⚠	QMF51A2-R40-BS	Fuse	T400 mA	1
	⚠	QMF51A2-R20-BS	"	T200 mA	1
	⚠	E48965-002	Fuse Socket		2

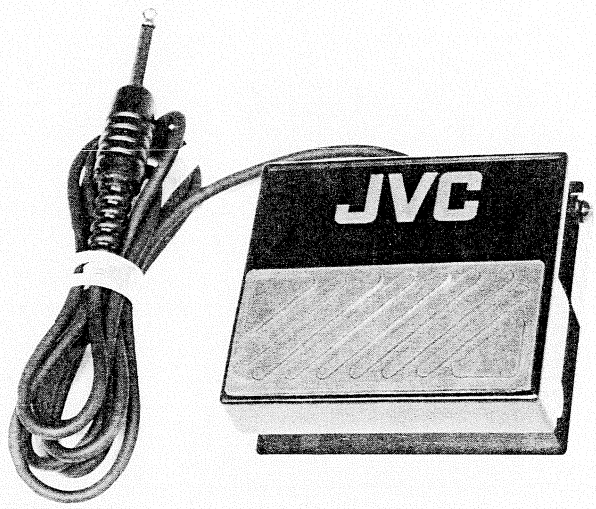
■ ET BOARD ASSEMBLY PARTS LIST

Symbol No.		Parts No.	Parts Name	Description	Q'ty
IC201		SMK31-2 NJM4558DD QMS6312-019 QMS6303-016	ET Board Assembly IC Jack "	External Op-amp. Microphone Foot Switch	1 1 1 1
VR201, 202 VR203		SMV2090 SMV2080 QFM31HJ-102ZD	V. Resistor (Volume) " (") M. Capacitor	Pitch Microphone	2 1 2
		QET61AM-107Z QET61EM-106Z QET61HM-105Z " -474Z	E. Capacitor " " "		1 1 2 2

■ CC BOARD ASSEMBLY PARTS LIST

Symbol No.		Parts No.	Parts Name	Description	Q'ty
LD1–10 D101–108 SW1–8		SMK31-3 GL-5HD22 1S1555 SM40152	CC Board Assembly LED Diode Tact Switch		1 10 8 8

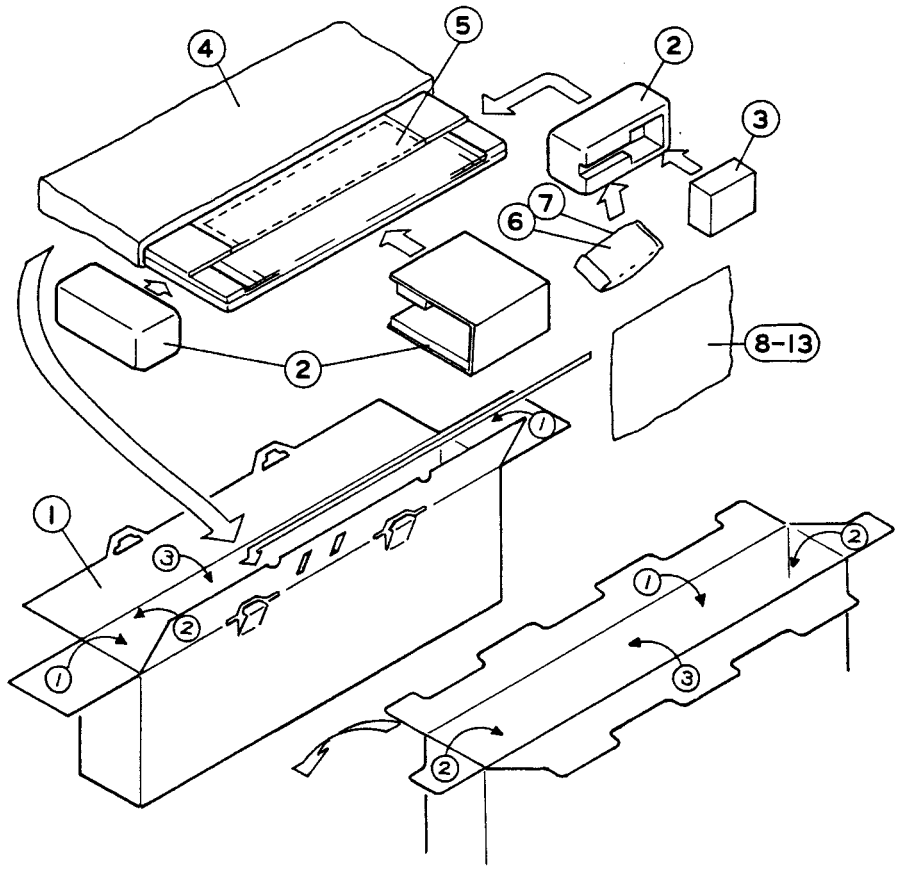
■ KF-1 FOOT SWITCH ASSEMBLY (Accessory)



PARTS LIST

No.		Parts No.	Parts Name	Description	Q'ty
		SMV2126 SMV2125	Push Switch Plug Wire		1 1

Packing

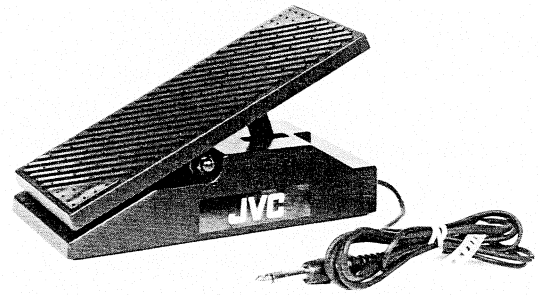


PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
1		PK-KB700	Packing Case		1
2		NZ-KB700	Packing Pad		1
3		OLSM1942	Foot Switch Ass'y	KF-10	1
4		QPGA110-06007	Poly Bag		1
5		PKSM100-13	Sheet		1
6		QPGA012-03005	Poly Bag		1
7	⚠	QMP3950-244	Power Cord	for Model N	1
	⚠	QMP2550-200	"	for Model H	1
	⚠	QMP9017-013-BS	"	for Model B	1
8		SMA1074	Song Book		1
9		SMA1083	Instruction Book		1
10		SMA9015	Return Envelope		1
11		SMA9017	Owners Card		1
12		SM2766-J01	Dust Cover		1
13		QPGA025-03505	Poly Bag		1

Optional Accessories

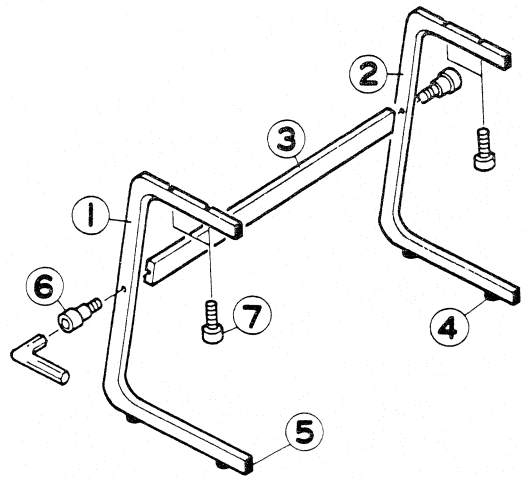
1) KX-20 (Expression Pedal)



PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMV2084 SMV2124	V. Resistor Plug Wire		1 1

2) KS-10 (Keyboard Stand)



PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SM2747	Stand Ass'y	KS-10	
1		SM2747-002	Frame L		1
2		" -003	Frame R		1
3		" -005	Channel		1
4		" -006	Foot		1
5		" -007	Pipe Cap		4
6		" -008	Set Screw		4
7		" -009	Knob Screw		2
8		SMP2079-010	Packing Case		4
					1

3) KC-20 (Carrying Case)

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Printed in Japan